

ACCOUNTING APPROACH THROUGH THE INTEGRATED INFORMATION SYSTEM OF ROMANIAN EDUCATION (SIIR)

Isabela Stancu (Liță), PhD student
IOSUD-SDSE Valahia University of Târgoviște, Romania,
isabela.stanculita@yahoo.com

Anda Ileana Necula, PhD student
IOSUD-SDSE Valahia University of Târgoviște, Romania, anda_ileana@yahoo.com

ABSTRACT: *Pre-university education has undergone rapid and profound changes through the continuous improvement of management, accounting and educational performance in pre-university education institutions. Educational institutions have been forced to adapt and acquire appropriate solutions to meet the challenges. In this situations, the choice and implementation of solutions certainly provides access to clearer and more concrete services, increasing the value of data and standardizing technological resources with institutional missions. The availability of a set of information, a database and primary tools of non-integrated analysis and control led to the need for a system such as SIIR – Integrated System of Romanian Education. By using this system it offers complete activities of management services but also of accounting within the pre-university education system from an operational, technical, administrative and essential point of view. From an accounting point of view, this system satisfies both the needs of users at the central level and the needs identified locally (the level of educational institutions). In this article we aim to test the advantages and disadvantages of the new information system as well as the impact of information technology on accounting systems identified in the sample of 15 educational institutions in Dâmbovița County, using a questionnaire with 15 questions addressed to both educational managers and other users of the SIIR. The conclusions showed the strengths and strenghts of this system but also an extremely high level of resistance to change.*

Keywords: *information technology, integrated information systems, technological endowment of schools, integrated information system of education in Romania.*

JEL Classification: *M41, H61, M35*

INTRODUCTION

In the age of digitalization, data has become one of the most important means for educational institutions. Previously, the manual system was used to collect, process and store information. At present, institutions have stored a huge amount of information, especially multinational companies. As a result of the Internet but also the technological transformation, information systems have become very necessary in all fields, including accounting and management. As a result, different types of information systems evolve for different purposes and according to needs, each playing a different role in institutions. The management information system is the most important tool in Romania, which offers reliability, is a complete tool, accessible and easy to understand information in a timely manner for system users. It aims to provide reliable, accurate, relevant and complete information to managers to improve organizational performance in institutions.

Accounting is the art of valuing, recording, classifying and communicating accounting and financial information about all transactions that have taken place within an institution. Information technology is a tool for processing, storing, organizing and transmitting data, generally through the use of electronic computers. Information technology has the ability to manage the data, information and knowledge used by institutions to achieve their objectives, in accordance with their mission and strategies. As a result of rapid access to information and the cancellation of unnecessary transactions, information technology and internet connection have led to significant changes in the work of accountants and improved the financial reporting system. These changes offer new possibilities and bring many challenges in the field of accounting, but also the support of institutions in decision making. Due to their positive impact, it defeats the negative effects, such as fraud or data security problems caused by the use of information technology. A significant impact of information technology on accounting systems is their ability to better record and supervise accounting transactions.

1. THE ADVANTAGES OF THE SIIIR SYSTEM IN ACCOUNTING

The paper combines qualitative and quantitative research, using specific methods, such as document analysis and content analysis. In order to fulfill the proposed objectives, we resorted to a series of bibliographic sources consisting of specialized books, accounting, fiscal and legal regulations, studies as well as articles published by various bodies in the field, to develop a quantitative survey-based research tool. We initiated a study that aimed at research in order to find an opinion of people directly involved in the management of financial-accounting activity in educational institutions.

The present paper aims to analyze the SIIIR technology in accounting, from the perspective of the impact of the flow of accounting processing. The management of activities within an educational institution differs depending on the complexity and needs and this involves different computer systems, including the nature of the activities. In these circumstances, data transparency and access to information in the shortest possible time can become a challenge for any educational institution. As a result, any correct and efficient conduct of business requires an integrated platform containing all the essential information for the institutions.

Romania is in the process of digitizing the most impactful areas, such as health, environment, transport and last but not least in education. In this context of the Covid 19 epidemic, the Ministry of Education has to implement one of the most difficult and extensive reforms. With the help of professionals from the ministry, they will implement reforms by researching objective data but also with the help of Romanians active with the competent authorities. There are numerous strategies for solving problems both locally and nationally, and for these precise information is needed which can be found on the Integrated Romanian Education System (SIIIR) platform. In figure 1 we have the presentation of accessing the SIIIR platform where we are asked to connect with a username and password.

Figure 1. Accessing the SIIIR platform

The Integrated Romanian Education System (SIIIR) was funded from the Operational Program of the European Social Fund Development of administrative capacity in 2007-2013

and was part of a project called "Integrated Education Information System in Romania". The project context is a set of information, databases as well as primary tools for non-integrated analysis and control, and the beneficiary of this project being the Ministry of Education - Project Management Unit External financing.

By implementing this system (SIIR), the Ministry of Education is offered support for a good increase in capacity planning and monitoring of the Romanian education system. With the help of this SIIR system, the Ministry of Education wanted to develop an inseparable and flexible system for the complete management of activities in the education sector, which would include other existing databases and applications at the level of the Ministry of Education.

2. CHALLENGES IN TECHNOLOGY IMPLEMENTATION

The general objective is to increase the performances in the Romanian educational system by developing and implementing the Integrated Informatics System of the Romanian Education. With the help of this SIIR platform we have numerous useful activities for the institutions within the education system, including the accounting department, as follows:

- ✚ managing SIIR users, roles, and permission templates;
- ✚ nomenclature administration;
- ✚ managing information regarding the school network;
- ✚ managing the information necessary to substantiate the schooling plan;
- ✚ managing the information needed to enroll in primary education;
- ✚ managing the information needed to enroll in preschool education;
- ✚ managing information on students enrolled in schools;
- ✚ operation and generation of statistical situations;
- ✚ **managing the data necessary to determine the standard cost per student;**
- ✚ managing information on material resources of educational institutions;
- ✚ human resources information management;
- ✚ **financial data management;**
- ✚ data management on extracurricular activities.

After accessing the platform, numerous modules are displayed, shown in figure 2, depending on the data to be entered or depending on the information / data required as follows:

- ✚ school network;
- ✚ schooling plan;
- ✚ material resources;
- ✚ educational unit management;
- ✚ enrollment in kindergarten;
- ✚ enrollment in primary education;
- ✚ **financial data;**
- ✚ student management;
- ✚ social programs;
- ✚ HR;
- ✚ statistical data;
- ✚ communication;
- ✚ catalog;
- ✚ diploma.

Figure 2. Presentation of SIIIR application modules



In order to prepare the report on the state of financing of pre-university education, it is necessary to evaluate the allocation / management / execution of budgets for capital funding for the year ended, but also for updating / recalculating standard costs used to obtain capital funding formulas at the system level. pre-university education. New differentiation and correction coefficients can also be drafted, including for the basic financing of educational institutions.

In the Financial Data module, from the SIIIR application, there are the sub-modules Budget and Payments, where you enter the data related to the financial year ended, respectively the initial budget, the final budget and the payments made of that year, you enter the specific information for both basic financing as well as for complementary funding, as shown in Figures 3, 4 and 5.

Figure 3. Budget recording by years and quarters

The screenshot shows the 'Editare bugete' (Edit budgets) module in the SIIIR application. It displays a table with budget data for the year 2018, categorized by quarters and total annual values. The table includes columns for 'Titlul' (Title), 'Buget initial' (Initial budget), 'Clasificația' (Classification), and 'Anul 2018' (Year 2018). The data is organized into a grid with rows for different budget titles and columns for quarters and annual totals.

Titlul	Buget initial	Clasificația	Anul 2018
Titlul 71	0,00	0,00	0,00
Titlul 72	0,00	0,00	0,00
Titlul 85	0,00	0,00	0,00
Total	446.400,00	538.810,00	419.043,00

Below the table, there is a section for 'Editare buget' (Edit budget) with a dropdown for 'Tip buget' (Budget type) set to 'Buget initial' and 'Clasificația' (Classification) set to 65. The table shows quarterly and annual budget data for various categories, including salaries, bonuses, allowances, and other salary rights.

The basic funding includes:

- ✚ expenses with salaries, bonuses, allowances and other salary rights in cash, established by law, as well as their related contributions;
- ✚ expenses with professional training;
- ✚ expenses with regular evaluation of students;
- ✚ expenditure on goods and services.

Complementary funding includes:

- ✚ investments, capital repairs, consolidations;
- ✚ grants for boarding schools and canteens;
- ✚ expenses for the regular national assessment of students;
- ✚ student scholarship expenses;

- ✚ student transportation expenses;
- ✚ expenses for teachers' commuting;
- ✚ expenses for the periodic compulsory medical examination of employees in pre-university education;
- ✚ expenses for school competitions and extracurricular educational activities organized within the education system;
- ✚ expenses for ensuring safety and health at work, for staff, preschoolers and students;
- ✚ emergency management;
- ✚ expenditure on participation in European cooperation projects in the field of vocational education and training;
- ✚ other expenditure of the nature of goods and services, which is not part of the basic financing.

Figure 4. Recording of payments

Total plăți		Plăți cumulate	Plăți aferente lunii selectate
Plăți cumulate			
Titlul 10		116.899,00	116.899,00
Titlul 20		13.877,38	13.877,38
Titlul 51		0,00	0,00
Titlul 56		0,00	0,00
Titlul 57		0,00	0,00
Titlul 58		0,00	0,00
Titlul 59		0,00	0,00
Titlul 65		0,00	0,00
Titlul 71		0,00	0,00
Titlul 72		0,00	0,00
Titlul 85		0,00	0,00
Total		130.776,38	130.776,38

Figure 5. Introduction of payments

Editare plăți		Plăți cumulate	Plăți aferente lunii selectate
10.01.01 - Salariu de bază		82.289,00	82.289,00
10.01.02 - Salariu de merit		0,00	0,00
10.01.05 - Spor pentru condiții de muncă		0,00	0,00
10.01.06 - Alte sporuri		2.812,00	2.812,00
10.01.07 - Ore suplimentare		0,00	0,00
10.01.08 - Fond de premii		0,00	0,00
10.01.09 - Prima de vacanță		0,00	0,00
Total		130.776,38	130.776,38

For state education, all amounts related to budgets and payments will be recorded, both for basic funding and for complementary and additional funding.

The Financial Data Module provided in SIIIR for the activities in pre-university education within the activities carried out through SIIIR, both for the **Management of the data necessary to determine the standard cost per student** and for the **Management of the financial data**.

Figure 6. Budget execution

	Buget	PIB	Buget - PIB
Anual			
Total	1.887.712,00	1.882.425,00	5.287,00
Titlul 10	1.693.360,00	1.691.710,00	1.650,00
Titlul 20	167.000,00	167.000,00	0,00
Titlul 51	0,00	0,00	0,00
Titlul 56	0,00	0,00	0,00
Titlul 57	24.000,00	20.363,00	3.637,00
Titlul 58	0,00	0,00	0,00
Titlul 59	3.352,00	3.352,00	0,00
Titlul 65	0,00	0,00	0,00
Titlul 71	0,00	0,00	0,00
Titlul 72	0,00	0,00	0,00
Titlul 85	0,00	0,00	0,00
Trimestrul 1			
Total	446.400,00	408.889,46	37.510,54
Titlul 10	360.400,00	357.198,00	3.202,00
Titlul 71	76.000,00	49.052,46	26.947,54

Figure 7. Confirmations following the recorded data

Confirmarea încheierii introducerii datelor

Modificarea bugetului inițial este permisă. Pentru confirmarea încheierii modificărilor, vă rugăm să apăsați butonul de mai jos.
TERMEN: -- februarie ANUL ȘCOLAR SELECTAT Finalizează

Confirmarea încheierii introducerii PIB-ului final

Modificarea bugetului final este permisă. Pentru confirmarea încheierii modificărilor, vă rugăm să apăsați butonul de mai jos.
TERMEN: -- februarie ANUL ȘCOLAR SELECTAT Finalizează

Confirmarea încheierii introducerii influenței 1

Modificarea influenței 1 este permisă. Pentru confirmarea încheierii modificărilor, vă rugăm să apăsați butonul de mai jos.
TERMEN: -- februarie ANUL ȘCOLAR SELECTAT Finalizează

Confirmarea încheierii introducerii influenței 2

Modificarea influenței 2 este permisă. Pentru confirmarea încheierii modificărilor, vă rugăm să apăsați butonul de mai jos.
TERMEN: -- februarie ANUL ȘCOLAR SELECTAT Finalizează

Confirmarea încheierii introducerii influenței 3

Modificarea influenței 3 este permisă. Pentru confirmarea încheierii modificărilor, vă rugăm să apăsați butonul de mai jos.
TERMEN: -- februarie ANUL ȘCOLAR SELECTAT Finalizează

Confirmarea încheierii introducerii influenței 4

During the research we were able to identify some advantages and disadvantages of the integrated information system of Romanian education, as follows:

Among the identified advantages we can mention:

- ✚ improving pre-university management for primary and secondary education by computerizing all processes and bringing them up to European standards;
- ✚ the generation of reports as well as financial analyzes determined to provide informational and decision-making support of another quality at a higher level;
- ✚ rapid information processing;
- ✚ a very good security of the system;
- ✚ time economy.

Regarding the disadvantages of SIIIR we can mention:

- ✚ the reluctance of human resources to form a complete and accurate database;
- ✚ in rural areas, in particular, we lack qualified staff, able to create and manage the database;
- ✚ shows resistance to change to school managers who do not have specialized knowledge of information technology, thus preventing the implementation of these systems no matter how strong and good they may be;

- ✚ the transition from previously used systems (eg BDNE) to the new system had to take place by importing the database originally created, after which the changes were introduced according to the new requirements;
- ✚ some anomalies but also numerous inconsistencies.

CONCLUSIONS

In the environment marked by rapid transformations, information technology is becoming an important strategic partner for activities. Information technology improves the performance of institutions and increases their competitiveness, as a result it has a positive impact on organizational processes, including accounting and finance but also other areas such as human resources and marketing. The accounting work was done manually, with the help of paper and pencil, but over time they were replaced with the most advanced techniques using information technology. The new technologies used in this field have a great impact in the accounting field, which includes computers, printers, faxes, smartphones, associated with the accounting software.

All institutions can afford to use information technology, from large institutions to small institutions. The spreadsheets support the accountants to perform in a positive way the calculations required by the reporting process but also by the accounting operations. Accounting software, currently used by most and at affordable prices, supports accountants in their accounting duties. Also the internet with its new paradigm, the internet of all things, nowadays connects everything from everywhere. Thanks to the connections offered by them, the data as well as the accounting documents can be registered, shared, and the online fiscal system of records and payment has improved the efficiency of the accounting departments. The Integrated Romanian Education System (SIIR) is a project that provides complete services for managing the activities of the pre-university education system. In this application (SIIR) there are a series of reports configured for each module, shown in Figure 8, and based on the data recorded in the application can be extracted other reports depending on existing requests. Due to this SIIR application, data are taken over on the data.gov.ro platform regarding the school network, the number of pre-university education units by foreign languages, by level of study, schooling plan, number of students in the pre-university system studying foreign languages.

Figure 8. Obtaining reports based on recorded data

Cod raport	Denumire raport	Descriere raport	Tip fișier export
1500	Raport buget - ordonare dupa tip buget	Raport buget - ordonare dupa tip buget	[icon]
1501	Raport buget - ordonare dupa clasificatie/articol	Raport buget - ordonare dupa clasificatie/articol	[icon]
1502	Raport plati lunare	Raport plati lunare	[icon]
1503	Raport plati cumulate	Raport plati cumulate	[icon]
1504	Raport buget final - plati cumulate	Raport buget final - plati cumulate	[icon]
1505	Raport tip buget - plati cumulate	Raport tip buget - plati cumulate	[icon]
1506	Raport tip buget - plati per titlu	Raport tip buget - plati per titlu	[icon]
1507	Raport tip buget - plati per clasificatie	Raport tip buget - plati per clasificatie	[icon]
1508	Raport tip buget - plati per clasificatie1	Raport tip buget - plati per clasificatie1	[icon]
1509	Raport tip buget - plati per clasificatie2	Raport tip buget - plati per clasificatie2	[icon]
1511	Raport verificare confirmare bugete si plati	Raport verificare confirmare bugete si plati	[icon]
1512	Raport verificare completare bugete si plati	Raport verificare completare bugete si plati	[icon]

Our research argues the predominant positive impact of information technology on accounting systems, which specifies improved performance in institutions. Thanks to information technology, many of the transactions can be carried out in a timely manner, in a simplified way and good decisions are made to achieve the objectives of the institutions.

REFERENCES

1. <https://www.cafr.ro/uploads/AF%202%202014-e16d.pdf>
2. <https://www.siiir.edu.ro/siiir/login.jsp;jsessionid=16954C237B676E31AC75FF4232F297DC.siiirNode2>
3. <https://www.seniorerp.ro/faq/care-sunt-particularitatile-unui-erp-ca-sistem-informatic-integrat/>
4. <https://www.semanticscholar.org/paper/Benefits-Of-Computerized-Accounting-Information-On-Dalci-Tan%C4%B1%C5%9F/109226a6c914fc267b9696247e068a8ce949c38e>
5. https://www.researchgate.net/publication/269463861_The_Relationship_between_System_Quality_Information_Quality_and_Organizational_Performance
6. <https://www.semanticscholar.org/paper/Investigating-the-Key-Factors-Influencing-on-among-Al-Mamary-Shamsuddin/a2b734002c10320d1a9d51cb866afbab3699268f>
7. Sistemul Național de Indicatori pentru Educație - Ghid metodologic, București, 2014, Mihaela JIGĂU, Irina HORGA, Cornelia NOVAK, Ciprian FARTUȘNIC, Magdalena BALICA
8. https://www.isj.tm.edu.ro/public/data_files/media/servicii/202006301550-Metodologie%20SIIIR.pdf
9. https://isj.educv.ro/sites/default/files/Metodologie%20SIIIR%20%20OMEN%204371%20din%2013.07.2017_0.pdf
10. https://www.edu.ro/sites/default/files/_fi%C8%99iere/Legislatie/2020/ordin%205.633_2019.pdf
11. <https://www.siiir.edu.ro/>